

REMARKS

Prior to this amendment, claims 1, 3-47, and 49-79 were pending. In this communication, we have amended claims 1, 36, 37, 43, 61, and 62-65, cancelled claims 41, 42, and 44-46, and added new claims 80-81. Accordingly, claims 1, 3-40, 43, 47, and 49-81 are presented.

Information Disclosure Statement

We are submitting an information disclosure statement concurrently with this amendment.

Claim Rejections – 35 U.S.C. § 112

Claims 36-46 and 63-68 were rejected as failing to comply with the requirements of 35 U.S.C. § 112, first paragraph and second paragraphs. Of these, claim 36 is the only independent claim, which has been amended to recite: We have amended claim 36 to recite:

A method, comprising:
introducing a first gas composition into a tube having an inner surface formed from a chalcogenide glass, the first gas composition comprising a first compound that is substantially inert with respect to the chalcogenide glass; and
exposing the first gas composition to conditions sufficient to change the first compound into a second compound to deposit a layer of an oxide glass on the inner surface of the tube;
wherein, relative to an alternative first gas composition that includes the second compound instead of the first compound, the first gas composition reduces the undesired impurities that form on the inner surface of the tube due to oxidation of the chalcogenide glass by the second compound.

The Examiner rejected claim 36 under U.S.C. § 112, first paragraph, indicating that he could not find support for the wherein clause added to independent claim 36 by an earlier amendment (Office Action, page 3, Section 5). The Examiner also rejected the claim under 35 U.S.C. § 112, second paragraph, indicating that the wherein clause was “awkwardly written” (id., page 4, Section 8).

We submit that, as amended, claim 36 satisfies the requirements of 35 U.S.C. § 112, second paragraph. Support for the wherein clause can be found, for example, in the specification at page 26, lines 5-16, which states:

[i]n some embodiments, the first deposited layer may adversely react with a compound or element forming the subsequent layer while that element or compound is in the form of a gas. An adverse reaction introduces impurities into the preform, which can be detrimental to fiber performance. For example, where an oxide glass is being deposited onto a layer of a chalcogenide glass, gaseous oxygen can oxidize the chalcogenide glass. In such instances, an inert component gas containing the reactive element or compound can be chosen for the gas composition to reduce (e.g., mitigate) any adverse reaction between the gas and the previously deposited layer (or tube). An example of a gas that can be used to provide oxygen when depositing an oxide glass on a chalcogenide (or other oxidizable glass) is nitrous oxide. In some embodiments, the relative concentration of the reactive gas (e.g., oxygen) can be increased once a thin layer of material (e.g., oxide glass) has been deposited on the previous layer. (emphasis added)

The Examiner also alleged that the independent claim 36 lacks enablement for the full scope of the claim (*id.*, Section 6). The Examiner acknowledges that the specification is “enabling for a first compound comprising nitrous oxide in order to deposit an oxide onto a chalcogenide,” but alleges that it “does not reasonably provide enablement for a first gas changed into a second gas which adversely reacts with a first material to form impurities and the introduction of the first gas composition reduces the undesired impurities on the inner surface relative the introduction of a gas composition including the second compound” (*id.*).

We have amended claim 36 to recite “a chalcogenide glass” and “an oxide glass” instead of “a first material” and “a second material,” respectively. However, we submit the specification satisfies the enablement requirement for first gas compositions other than the given example of nitrous oxide. “The test for enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures coupled with information known in the art without undue experimentation” *United States v. Teletronics, Inc.*, 857 F.2d 778, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). Moreover, the Federal Circuit has held that where a single embodiment is disclosed “along with the general manner in which [it] was ascertained, ... other permutations of the invention could be practiced by those skilled in the art without undue experimentation.” *Id.* Here, the disclosure sets forth a general principle that allows a person who is reasonably skilled in the art to reduce “undesired impurities that form on the inner surface of [a] tube [comprising a chalcogenide glass] due to oxidation of the chalcogenide glass by [a] second compound.” Specifically, the disclosure teaches that “[i]n such instances, an inert component gas containing the reactive element or compound [(i.e., the element or compound that oxidizes the chalcogenide glass)] can be chosen for the gas composition to reduce (e.g., mitigate) any adverse reaction

between the gas and the [layer of the chalcogenide glass]." Although the disclosure only provides a single specific embodiment (i.e., nitrous oxide), based on the general principle a person of ordinary skill could identify other examples without undue experimentation.

Accordingly, we submit that claim 36, as amended, satisfies the requirements of 35 U.S.C. § 112, and we ask that the rejection of claim 36 under 35 U.S.C. § 112 be withdrawn. We further submit that, as amended, claim 36 is in condition for allowance, which action is requested.

Claims 37-40, 43 and 63-68 depend, either directly or indirectly, from independent claim 36. We submit that, in view of the amendment to claims 36, 37, 43, 61, and 62-65, claims 37-40, 43 and 63-68 also satisfy the requirements of 35 U.S.C. § 112 and we ask the Examiner to withdraw the rejection of these claims under 35 U.S.C. § 112.

We have cancelled claims 41, 42, and 44-46, so the rejection of these claims under 35 U.S.C. § 112 should also be withdrawn.

Claim Rejections – 35 U.S.C. § 102

Claims 47, 69-74, 76-78 were rejected under 35 U.S.C. § 102(e) as being anticipated by WO 02/084345 ("Ahmed").

Independent claim 47, as amended, covers methods that require:

exposing the layer of the first chalcogenide glass to a second gas composition under conditions sufficient to deposit a layer of a second glass on the layer of the first chalcogenide glass, wherein the second glass is an oxide glass and exposing the layer of the first chalcogenide glass to the second gas composition comprises activating a plasma in the second gas composition.

Nowhere does Ahmed disclose or suggest methods that include depositing any materials by quote activating a plasma in [a] gas composition," let alone depositing a layer of an oxide glass on a layer of a chalcogenide glass this way. Accordingly, Ahmed does not anticipate claim 47, and we ask that the rejection of claim 47 under 35 U.S.C. § 102(e) be withdrawn.

Claims 69-74 and 76-78 depend, either directly or indirectly, from independent claim 47. Thus, claims 69-74 and 76-78 should be allowable over Ahmed for at least those reasons set forth above in connection with claim 47. We ask, therefore, that the rejection of these claims under 35 U.S.C. § 102(e) be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 3-13, 15-21, 23-25, 27, 29-33, 35, 52, 59, and 60 were rejected as allegedly being obvious in view of Katsuyama (EP 0 060 085 B1) in combination with Blanc ("Plasma-enhanced chemical vapor deposition of Ge-Se and Ge-S compounds," Opt. Eng., Vol. 27, No. 10, pp. 917-921 (1988)). Claims with, 1, 3-13, 15-21, 23-33, 35, 49-52, 54-56, 58-60, and 62 were also rejected as allegedly being obvious in view Ahmed in combination with Blanc.

As amended, independent claim 1 is directed to methods that require "exposing [a] layer of [a] first chalcogenide glass to a second gas composition ... to deposit a layer of a second glass on the layer of the first chalcogenide glass, wherein ... exposing the layer of the first chalcogenide glass to the second gas composition comprises activating a plasma in the second gas composition and moving the plasma in a direction non-normal to a surface of the first chalcogenide glass layer."

Neither Katsuyama, Ahmed, nor Blanc, either alone or in combination, disclose or suggest methods that include "activating a plasma in [a] gas composition and moving the plasma in a direction non-normal to a surface of [a] chalcogenide glass layer." In fact, Blanc is the only reference that discloses methods that include activating a plasma in a gas composition, but Blanc does not disclose or suggest moving the plasma relative to the surface of the layer onto which he deposits the glass.

Accordingly, neither Katsuyama, Ahmed, nor Blanc, either alone or in combination, teach or suggest all the limitations of claim 1. We ask, therefore, that the rejection of claim 1 as being obvious in view of Katsuyama in combination with Blanc be withdrawn.

Claims 3-13, 15-21, 23-29, 30-33, 35, 49-52, 54-56, 58-60, and 62 all depend, either directly or indirectly, from claim 1. Accordingly, these claims should be allowable over the combination of Katsuyama and Blanc and/or Ahmed and Blanc for at least those reasons set forth above in connection with claim 1. We ask, therefore, that the rejection of claims 3-13, 15-21, 23-29, 30-33, 35, 49-52, 54-56, 58-60, and 62 as being obvious in view of Katsuyama and/or Ahmed in combination with Blanc be withdrawn.

New Claims

Claims 80 and 81 depend from claim 1 and should be allowable over the prior art for the same reasons as set forth above in relation to claim 1. We ask that claims 80 and 81 be allowed.


Conclusion

We submit that all claims are in condition for allowance, which action is requested. Cancelled claims have been cancelled without prejudice or disclaimer. Any circumstance in which we have (a) addressed certain comments of the Examiner does not mean that we concede other comments of the Examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or cancelled a claim does not mean that we concede any of the Examiner's positions with respect to that claim or other claims.

Enclosed is a \$60.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 13445-026001.

Respectfully submitted,

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